

At the request of Prof. Armstrong, I have summarised already what seems to me the electrical evidence for the dissociation theory, and I will not repeat what appeared in your columns of May 31; but I wish again to express a hope that someone who rejects the theory will put forward an alternative scheme to explain the mechanism of electrolytic conduction.

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Trinity College, Cambridge, July 13.

The Fertilisation of *Pieris*.

ON May 20, near Chindi, in the State of Sukét, North-Western Himalaya, I was able to make notes on the pollination of *Pieris ovalifolia* by *Pieris brassicae*, *Pieris soracta*, and other insects. *Pieris ovalifolia*, D. Don, at Chindi, grows to be a small tree in forests of *Pinus longifolia* and *Pinus excelsa* on hill-sides about 6000 feet, where in May thousands of *Pieris soracta*, and hundreds of *Pieris brassicae*, flit through the trees.

My first observations were made about 6 a.m., before the sun was fully on the hill-side; and then the *Pieris* flowers were visited by *Bombus haemorrhoidalis*, Smith, in a very diligent way. Later, after the sun was well up, came *Pieris brassicae*, Schrank, to the flowers, and then many individuals of *Pieris soracta*, F. Moore, which is in May a most abundant butterfly. With the butterflies a large steel-blue and orange wasp came to the *Pieris* bushes, and bit holes in the corollas, which later little Aphids also used for stealing the honey.

Pieris branches stand horizontal, with the leaves on a plane above the racemes of flowers. There are twenty to thirty flowers on a raceme, and the topmost open as the lowest die. Each flower is a bell, like that of one of our common English *Ericas*, 10 mm. long, and very slightly constricted at the middle; the mouth is only 2 mm. in diameter. *Pierids* and *Bombus* suck honey hanging under the bells, except where some fortuitous circumstance brings the flowers of one branch close to the leaves of another; and then the butterflies are very ready to try to get the honey without having to hang back downwards to reach into the bells. When once back downwards they walk as on a causeway along the long, regular racemes, generally from younger to older flowers, i.e. towards the base.

Pieris anthers are two-horned, as are so many of the anthers in the *Ericaceae*, and with the help of their filaments make an entanglement at the constriction of the bell. The filaments are much more bent into an S than is usual in the *Ericaceae*, and form a spring which, by pressing with the lower curve of the letter against the corolla, holds the anther pores against the style, in such a firm manner that they can only free the powdery pollen when the pressure of the spring is interfered with. This the visiting insects do, and receive a shower of pollen on their heads or probosces. As it is impossible to slit the corolla without causing pollen to fall, the part it plays in keeping closed the anther pores is evident; and it is also impossible to push a needle past the ring of anthers without liberating pollen. The stigma is close to the mouth of the flower, and is bound to be touched by an insect's tongue before it touches the anthers. When mature it is 4.5 mm. beyond the anther-ring. The stigma matures after the opening of the flower, and the style grows 1.5 mm. between the opening of the bud and its maturity, but the anther-pores appear in the bud. Honey is secreted very abundantly behind the slightly broadened bases of the filaments. The duration of the flowers is several days. After the fall of the corolla, the sepals close over the ovary, and the pedicel ultimately turns upwards.

I have communicated the above actual observations to NATURE in the hope that both zoologists and botanists may read them, and be reminded of the possible inconveniences resulting from using the same generic name for two even very distinct organisms. I admit that we are not at present at all likely to rule that a previous use of a name in zoology or botany precludes its use in botany or zoology; but it is desirable to do what one can to avoid using used names, and to forward that end indexes like Durand's "Index Generum Phanerogamarum" become the more and more wanted, especially from the zoologists.

I give here just a few instances of the double use of a generic name. *Liparis* is the nun moth of Europe and an orchid of Europe; *Iris* is an insect and the well-known plant; *Lælia* is a moth and an orchid; *Adesmia* is a beetle and a shrub; *Castalia* is a beetle of India and the water-lily, while *Castalius* is an Indian butterfly; *Graeffea* is a Phasmid of Fiji and a plant of Fiji; *Empusa* is an insect and an insect-killing fungus; *Prosopis* is a bee and a plant; *Stilbum* is a Chrysid and a fungus; *Acrocephalus* is a bird and a herb; *Taphria* is an insect and the legitimised form of *Taphrina*, a fungus. To emphasise my point it will be my endeavour to ascertain if a fungus of the genus *Empusa* can destroy the insect *Empusa*, if *Castalius* visits *Castalia*, and if *Acrocephalus* eats the seed of *Acrocephalus*.

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AUSTRALIAN ORIGINS.¹

IF the enthusiasm which leads a man of science to travel at midsummer to one of the hottest regions of the world may be taken as evidence, geology will soon have much to say on Australian anthropological problems. Prof. Gregory, at the instigation of Dr. Howitt, visited the Lake Eyre region, with a prospect of encountering a temperature of some 120° F., in order to throw light on the legends of the aborigines and the problem of their original home. All over Australia are found stories of monsters like the Bunyip; but in the Lake Eyre region they present peculiar features; the animals, called *Kadimakara*, are said to be extinct, and are represented as arboreal in their habits according to one form of the legend, aquatic in another. The latter is of no special interest, but it is difficult to see how the idea of sky people and animals could have originated in Australia, the vegetation of which is not apt to suggest the idea. Prof. Gregory sees in it evidence of migration, either of legends or of their narrators, from tropical parts.

It is certain that at the present day transmission of the dramatic performances known as *corroborees* is very common. The expedition saw on the Peak Station, west of Lake Eyre, a *corroboree* known to have travelled from North-west Central Queensland since the year 1893. From a photograph in the possession of the present writer it is certain that the dance called *Molongo* in Queensland and *Tji-tjingga* near Lake Eyre was known to the Arunta at Alice Springs in 1903 or 1904; but whether it came *via* the Peak or from the north-east cannot be determined. From Dr. Howitt and others we learn that new songs are passed from tribe to tribe, their meanings being forgotten; and the tendency seems to have existed in the 'thirties of the last century, so that it cannot be put down to European influence and easier communication. There is, however, no similar evidence of transmission of myths; *prima facie*, therefore, there is no ground for supposing that the *Kadimakara* story is of foreign origin; to raise the presumption it would be necessary to find its analogue elsewhere.

The argument for the foreign origin of this myth rests in part on the assumption that the geographical conditions of the region have been unchanged since its present, or rather, in only too many cases, late occupiers reached it. In proof of this Prof. Gregory quotes legends explaining the origin of natural features and representing them as the same when they were first known as they are at the present day. But it is clear that we are not entitled to assume the

¹ "The Dead Heart of Australia; a Journey round Lake Eyre in the Summer of 1901-2, with some Account of the Lake Eyre Basin and the Flowing Wells of Central Australia." By Prof. J. W. Gregory, F.R.S. Pp. xvi+384. (London: John Murray, 1906.) Price 16s. net.

same age for all items in a stock of folk-tales; and in any case the evidence of myths is untrustworthy in matters of history. It seems possible that man was in the area before the great climatic changes described in the work before us; the failure to find worked stones associated with the extinct marsupials cannot be regarded as decisive until a wider search has been made.

Unfortunately, Prof. Gregory was unable to see more than a portion of the Tji-tji-ngalla corroboree. Its transmission raises interesting problems; in Queensland the Molongo is a kind of evil spirit, and it would be interesting to know whether it is in this light that the principal performer is regarded in Central Australia. Some of the words are recorded, and the author is disposed to see in the fact that they are untranslatable by the performers evidence of rapid

that there is no evidence of intermixture, and points to the singular uniformity of type in Australia as evidence of racial purity. Against this it may be said that there is considerable variation in hair, as may be seen by comparing Taplin's South Australian types with Spencer and Gillen's Central tribesmen. As Prof. Gregory points out, the skull is more variable than hair; similarity of physical conditions may have more to do with similarity of skull-type than any original uniformity of physical type.

The latter half of the book is devoted to a discussion of how the dead heart of Australia can be revived, and of the origin of the water supply of the so-called artesian well in Australia. It appears that the scheme for an inland sea, to be formed by supplying Lake Eyre with water from the Southern Ocean, is impracticable. It would cost little less than the amount



FIG. 1.—The Tji-tji-ngalla Corroboree, as performed at Kilalpaninna. From "The Dead Heart of Australia."

changes in language. But it is the unintelligibility which causes the changes, and not *vice versa*. The song passes from tribe to tribe, and is unintelligible a few miles from its centre of origin. The change in corroboree words is therefore comparable to the variations introduced by children into counting-out rhymes, &c., which they have learnt, parrot fashion, from a foreigner; these changes would not be evidence of modifications in European languages.

By discovering dingo bones in association with those of the *Thylacinus*, now found alive only in Tasmania, Dr. Gregory has added force to the argument that the dingo was not introduced by man. He also argues that the Tasmanians must have been in Australia before the dingo if, as Dr. Howitt argues, they passed into Tasmania by land. On the relation of the Tasmanians and Australians Prof. Gregory has seen reason to change his view. He now holds

of our national debt. Prof. Gregory protests against the waste of water from the wells, justifiable only on the supposition that they will never cease to flow. Experience shows that they are already diminishing their supplies, not from any choking of the bores, but from more radical causes, and it is suggested in the work before us that the real source of the supply is not meteoric, but plutonic; in other words, Australia is recklessly drawing on a banking account which has been steadily piled up for tens or hundreds of thousands of years. Unless measures are taken to check youthful extravagance, future generations of colonists will have cause to regret that no heed is paid to the warnings of geologists.

The work is excellently illustrated by numerous maps, plans, and plates. Anthropologists will look forward to the other work on the aborigines which Prof. Gregory promises in the preface. N. W. T.